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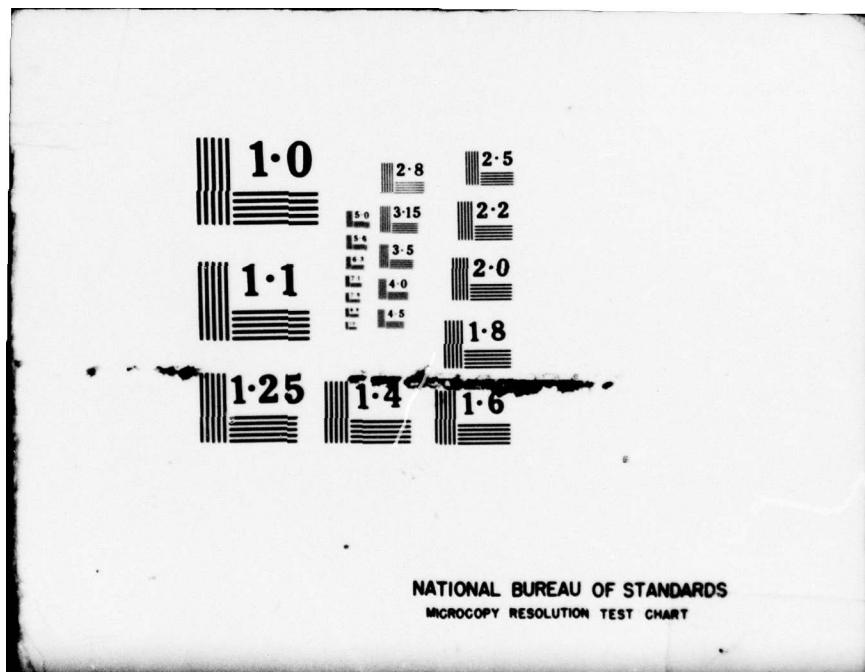
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## A METHODOLOGICAL APPROACH TO MEASURING THE MEANING OF ALCOHOLISM

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**REPORT NO. 75-23**

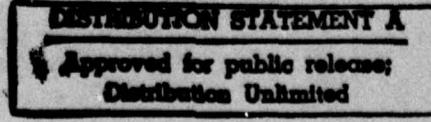
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## NAVAL HEALTH RESEARCH CENTER

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**NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND**  
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A METHODOLOGICAL APPROACH TO MEASURING THE  
MEANING OF ALCOHOLISM<sup>†</sup>

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\*\* Medical Specialties Branch, Center for Prisoner of War Studies.

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## ABSTRACT

79 men were studied at the Alcohol Rehabilitation Unit, Naval Hospital, San Diego to develop a multiple dimensional measure of the impact of alcohol on a patient's life. Extent of Drinking, withdrawal symptoms, financial difficulties and interpersonal impact were examined separately and together in a composite score. A measure of the impact of alcohol on a patient's life was developed. Work problems, a family history of drinking, motives for drinking, somatic complaints, drinking patterns and interpersonal problems were related to intensity of alcohol involvement.

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Darrel Edward, Raymond C. Spaulding, Patricia Coben

INTRODUCTION

From a practical point of view, an individual may be considered alcoholic when the use of alcohol significantly interferes with occupational performance, interpersonal relationships, or health and economic functioning. The measurement of the interference produced by alcoholism remains unspecified.

The purpose of this study was to develop indices consistent with the practical concept of alcoholism, examining effects rather than trying to establish a consensual meaning for "alcoholic." In an effort to understand the impact of alcoholic consumption upon the individual's life, the self-reported effects of drinking were related to variables which characterized men diagnosed as alcoholic.

Previous attempts have examined the personality profiles or demographic patterns associated with alcoholism. The results of such studies are varied and at times conflicting. The major shortcoming with the work had been the a priori definitions taken for "alcoholism." Major criterion clusters had not been established empirically. Subsequently, research in alcoholism, attitudes, and personality has not yielded positive management strategies for treating the alcoholic patient or have not produced findings which appear applicable to more than the sample operationally defined in the study. The present study attended to the development of an empirical definition for "alcoholism" which will give a measure from which clinical studies and patient-related research may develop.

## METHOD

Subjects

During September, 1973, biographical and clinical data were collected on 79 men admitted to the Alcohol Rehabilitation Unit (ARU), Naval Hospital, San Diego, California. Seventy-seven (77) of the patients were Navy enlisted men. One man was a Navy officer, and one was an enlisted Marine. The final diagnoses for these men were as follows: Alcoholic Addiction, Chronic (N=46); Habitual Excessive Drinking (N=25); Episodic Excessive Drinking (N=4); and Alcoholism, Other (N=4).

Procedure

Patients filled out an Intake Questionnaire of 127 items that furnished information on (a) psychosocial history (name, age, years' service, marital status, etc.); (b) drinking patterns; and (c) extent of impairment, including home and family, job, community, and health. Follow-up status (outcome) of the men's occupational adjustment one year after being released from ARU was collected. Mean and modal characteristics were used in the summary of the data. Outcome information was presented descriptively.

Criteria Development

Five criterion clusters were constructed as follows: (a) the intensity of one's drinking behavior; (b) the number of withdrawal symptoms reflecting physiological involvement; (c) financial difficulties experienced by the drinker and his family; (d) the interpersonal impact that the patient's drinking had on the patient's family; and (e) a composite criterion score consisting of the first four measures.

The following operationalized measures define the criterion clusters:

(a) Drinking intensity--"considering the past few month...which statement of frequency best describes how often you...".

(1) Have anything alcoholic to drink? (0--none to 7 almost daily.)

(2) Become obviously intoxicated? (0--none to 7 almost daily.)

The scores from #1 were summed with scores from #2 and the total was taken as the criterion score.

(b) Financial difficulty associated with drinking--"to what extent have you incurred financial difficulties related to alcohol?" Nine areas were given as follows: (1) purchasing alcohol, (2) foolish purchases, (3) gambling, (4) bad investments, (5) auto accidents, (6) court costs, (7) bankruptcy, (8) military fines, and (9) reduction in pay. The responses were multiplied by a severity score from "none" = 0 to "severe" = 3 and the scores were summed ranging from 0 to 27.

(c) The number of withdrawal symptoms, "beginning one or two days after I stopped drinking" were noted: hand tremor, severe shakes, loss of appetite, upset stomach, nausea, vomiting, rapid and strong heartbeat, weakness, heavy sweating, agitation, restlessness, hard time falling asleep, confusion, nightmares, seizures, fits or convulsions, and seeing or hearing things which weren't really there. The number of symptoms were summed ranging from 0 to 17.

(d) The effect drinking had on the drinker's relationship with his parents, spouse and children. The effect on each relationship was scored from 0 to 3, (none to severe), and the three scores were summed for a single criterion score, ranging from 0 to 9.

(e) A composite score was computed by giving equal weighting to all the above criterion scores and calculating a composite sum (ranging from 0 to 67). This score was taken as an indicator of the effects from and intensity of alcohol use in the sample. This score reflects the extent of use of a man with alcohol. The more involved (a measure of intensity) the greater the number of correlated problems one would expect to find. Stepwise, multiple regression techniques

were used to relate criteria measures to self-reported characteristics of the man's behavior.

#### RESULTS AND DISCUSSION

Psychosocial History: The average age of the patients was 33 (age ranging from 21-42). The majority of the men were married and living with their families (14 single, 41 married, 9 separated, 14 divorced, and 1 widower). The average length of service was 13.5 years (57 men had served over 10 years). Seven of the men had civil charges pending at the time of admission to the rehabilitation program. Seventy-seven of the men anticipated that they would be returned to duty after treatment.

The majority of the men were raised by their natural parents (N=58). Thirty-four of the men (43%) described their father as a "problem drinker." Forty-eight patients quit school at 17 after completing 10.9 years with 32 others quitting between the ages of 14 and 17. Only a few men (N=10) reported having problems in school or in their community.

Sixty-seven men out of the sample of 79 had been taking "other drugs" at least twice a month before hospitalization. They described 18 different drugs not including the various preparations of aspirin. The most common drug taken was a tranquilizer. Most of the men in the sample (61%) had had previous alcoholic rehabilitation (AA, Credo, military counselors, or private treatment).

Drinking Patterns: The men began drinking at an average age of 17 with 29 men beginning before age 17. By the age of 24, they had become heavy drinkers. Generally, the men were aware of their reasons for drinking. Forty-five per cent (45%) stated that they drank to avoid personal conflicts, especially the stresses associated with marital problems and divorce. Escape, social conformity, the effect and availability of alcohol was given as reasons for drinking.

Drinking behavior, for its various reasons, generally occurred at bars and

clubs as well as at home. The men drank at noon on work days, were generally open in their drinking behavior, and experienced being intoxicated two or three days a week for the past three years. This rather open, heavy drinking pattern was accompanied by the inability to stop after a couple of drinks. Only eight men in the sample reported they could stop without great difficulty, while 39% reported they could not stop drinking after the first two drinks, and 22% reported that they did not want to stop. Fifty-three men saw "an alcoholic" primarily as one who "finds it difficult, if not impossible" to control his drinking. Twenty-six of the men saw the alcoholic as being "physically addicted to alcohol."

Impairment to Home, Family, Job, Community and Health: The major negative interpersonal effect from drinking was manifested in the patient's relationship with his wife. A patient's parents were often affected. The effect on children was also a major concern. Thirty-two men reported having been in an automobile accident while driving under the influence of alcohol. Thirty-three men had been arrested for driving while intoxicated. Fifty-eight percent (58%) reported financial difficulties caused by using available cash to purchase alcohol instead of paying bills.

Outcome: One year after being released from the program, follow-up information was received from the military active/duty discharge files. At that time, 73 of the 77 Navy enlisted men were still in the service. The four who had left the service had completed their enlistment contract; two at 20 years, one at four years, and one at 10 years. The Marine and the Navy officer could not be followed.

Criteria Indices: The major relationships among demographic and behavioral information and the five criteria scores are summarized in Table I. Only subjects with complete data scores were included in the analyses. Regression

analysis was used parsimoniously to select a set of descriptor variables associated with each intensity score.

The drinking pattern score reflected length of alcoholic involvement, physiologic involvement and behavioral dysfunction, including interference with work performance.

Drinking Intensity: Five unique descriptor variables were related to a patient's drinking intensity:

- (a) experience of agitation ( $\beta^a=.39$ ),
- (b) age you began heavy drinking ( $\beta=.30$ ),
- (c) previous admissions for alcoholism ( $\beta=.27$ ),
- (d) do you drink at noon ( $\beta=.25$ ), and
- (e) have you been injured while under the influence ( $\beta=.19$ ).

These variables were strongly associated with drinking patterns ( $R=.73^b$ ).

Financial Difficulties: Financial trouble resulting from drinking was associated with a broad spectrum of a man's total profile: drinking patterns, behavioral dysfunctions, physical problems, relational disturbances and psychological disturbances. The regression procedure identified four variables:

- (a) drinking for effect ( $\beta=.31$ ),
- (b) experience of agitation ( $\beta=.25$ ),
- (c) nightmares ( $\beta=.23$ ), and
- (d) age you began heavy drinking ( $\beta=.31$ )— $R=.59$ .

Withdrawal Symptoms: Ten variables were related to withdrawal symptoms, including drinking patterns, demography, ability to control drinking behavior,

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<sup>a</sup> A beta weight ( $\beta$ ) indicates the relative strength of association with the criteria among the predictions chosen by regression.

<sup>b</sup> Multiple regression coefficient reflecting the strength of relationships between a regression equation and the criterion score in the form  $Y = \beta_1 x_1 + \beta_2 x_2 + \beta_N x_N + K$ .

relationship dysfunctions, and behavioral dysfunctions. Only three variables emerged from the regression procedure:

- (a) age you quit school ( $\beta=.54$ ),
- (b) do you sneak drinks? ( $\beta=.27$ ),
- (c) have you ever vomited blood? ( $\beta=.24$ )  $R=.66$ .

Interpersonal Relationships: The intensity score reflecting interpersonal problems was associated with several other dysfunctions. The following related symptoms emerged: drinking behavior, financial difficulties, physical involvement, behavioral problems, withdrawal symptoms, and familial history. Physical symptoms such as:

- (a) do you suffer from hemorrhoids? ( $\beta=.35$ ),
- (b) have you experiences nausea, vomiting during withdrawal? ( $\beta=.39$ ),

and a family history variable, do you have relatives you would describe as problem drinkers? ( $\beta=.43$ ) account for the unique behavioral patterns associated with interpersonal problems ( $R=.68$ ). A patient from an alcoholic family, with such intense use that physical and withdrawal symptoms are present, can be expected to have suffered the greatest interpersonal problems.

Composite Score: All of the partial scores reflected a general pattern indicating that any behavioral measure of alcoholic involvement is related to elements from most other areas of the patient's life. In addition, the data indicate strong interrelationships among the parts of the patient's history. Treatment, drinking pattern, physical symptoms, behavioral dysfunction, and family history were all associated with the composite score. Number of days in the hospital ( $\beta=-.67$ ); do you drink for a quick effect ( $\beta=.63$ ); and do you have relatives you would describe as problem drinkers? ( $\beta=.45$ ) uniquely account for the composite score ( $R=.90$ ).

From Table I, it can be seen that the composite score reflects one's motives for and behavior while drinking, treatment for alcoholic problems, and familial

history. The score operationally includes the effect of drinking on the involvement of one's somatic system, financial difficulties, interpersonal problems, and drinking patterns.

COMMENT

Alcoholic problems defined by the criteria in this report are generally associated with (1) history of early alcohol involvement, (2) family history of drinking problems, (3) manifesting somatic complaints and withdrawal symptoms, (4) behaving in ways to hide drinking behavior, (5) not meeting social requirements, (6) disturbed interpersonal relationships, (7) financial difficulties associated with drinking behavior, and (8) incurring work loss or performance deterioration. These patterns, characteristically, have been associated with drinking, but the strength of association of these behaviors with the composite intensity score indicated that "alcoholism" can be defined by the impact that drinking has on the life of an individual and that the impact can be quantified in a reasonable way.

TABLE I

## The Intercorrelations between Significant Prediction and Criteria Scores

<u>Criteria</u>	<u>Predictors</u>	
Drinking	1. Age you began heavy drinking?	-.43
Intensity	2. Have you been injured while under the influence?	.41
N = 63	3. Have you experienced agitation during withdrawal?	.41
	4. Do you drink at noon on workdays?	.39
	5. What age were you first married?	-.29
	6. Number of previous hospital admissions for alcoholism?	-.26
	7. Do you drink in bars and clubs	.26
	8. Do you drink in the morning?	.26
	9. Has drinking caused you to be late for work?	.23
	10. Age	-.23

<sup>a</sup> Questions with yes/no are scored yes=1, no = 0.

TABLE I (cont.)

<u>CRITERIA</u>	<u>PREDICTORS</u>	
Financial	1. Do you drink for quick effect	.40
Difficulties	2. Do you have nightmares?	.35
N=75	3. Has your drinking affected your relationship with your spouse?	.33
	4. Age you began heavy drinking?	-.31
	5. Do you suffer from hemorrhoids?	.31
	6. Have you experienced agitation during withdrawal?	.31
	7. Has your drinking affected your relationship with your parents?	.26
	8. Have you been injured while under the influence?	.25
	9. Number of sisters with which you were raised?	-.25
	10. Do you lie about drinking?	.24
	11. How often were you intoxicated?	.24

TABLE I (cont.)

<u>CRITERIA</u>	<u>PREDICTORS</u>
Withdrawal	1. At what age did you quit school? -.54
Symptoms	2. Do you sneak drinks? .31
N = 76	3. Age - -.31
	4. Highest grade completed. .30
	5. Have you been injured while under the influence? .30
	6. Do you drink in the morning? .27
	7. Do you drink for quick effect? .24
	8. Have you ever vomited blood? .23
	9. Are you able to stop after one or two? .22
	10. Has your drinking affected your relationship with your spouse? .14
Interpersonal Relationships	1. Do you have relatives you would describe as problem drinkers? .43
N = 37	2. Have you ever vomited blood? .40
	3. Do you have dark and tarry bowel movements? .40
	4. Do you suffer from hemorrhoids? .38
	5. Have you experienced nausea/vomiting during withdrawal? .38
	6. Have you been injured while under the influence? .35
	7. Have you incurred financial difficulties due to drinking? .34

TABLE 1 (cont.)

(I.P.)

8.	Do you drink for quick effect?	.34
9.	Do you lie about your drinking?	.32
10.	Do you sneak drinks?	.30

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Composite	1. Do you drink for quick effect?	.52
Intensity	2. Do you suffer from hemorrhoids?	.51
score	3. Do you sneak drinks?	.50
n = 36	4. Have you experienced confusion during withdrawal?	.49
	5. What age were you first married?	-.49
	6. Do you have relatives you would describe as problem drinkers?	.48
	7. Do you drink in the morning?	.42
	8. Number of days in the hospital?	-.42
	9. Have you experienced agitation during withdrawal?	.41
	10. Have you experienced nausea/vomiting during withdrawal?	.41
	11. Have you ever vomited blood?	.39
	12. Have you been injured while under the influence?	.38

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